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Figure 1

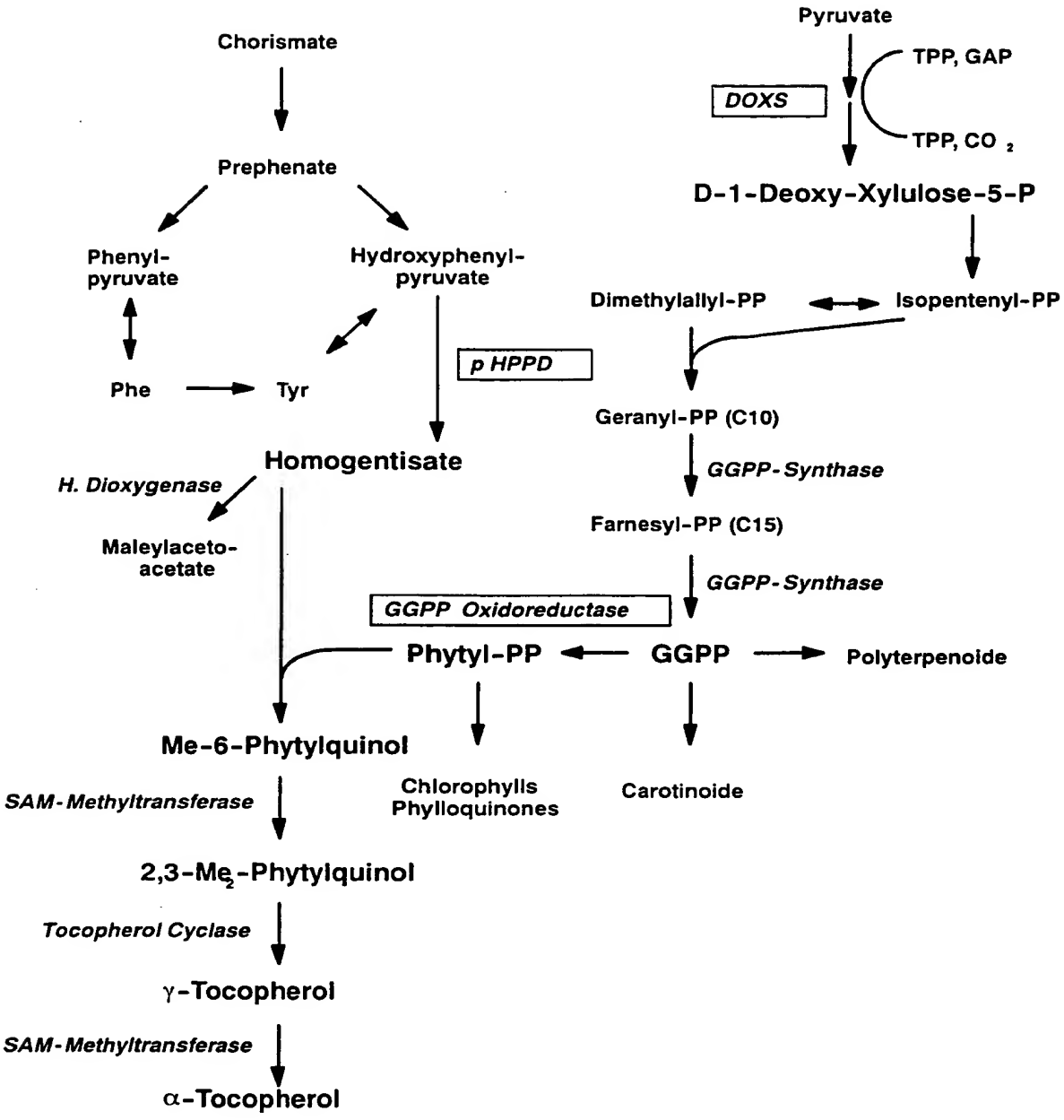
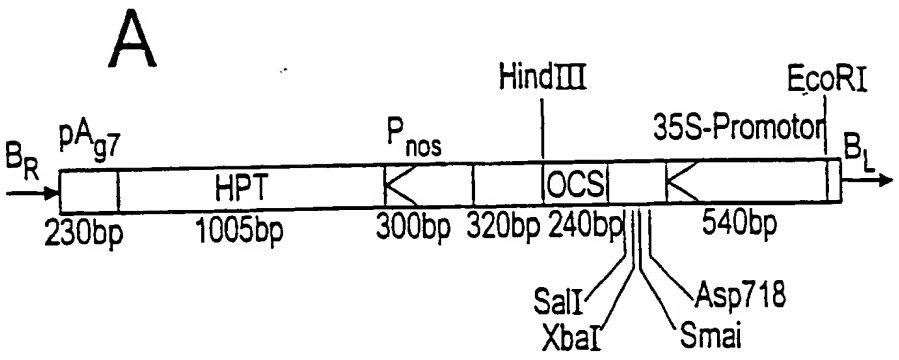

Chorismate
Prephenate
Phenyl-pyruvate
Hydroxyphenyl-pyruvate
Phe
Tyr
p HPPD
Homogentisate
H. Dioxygenase
Maleylaceto-acetate
Me-6-Phytylquinol
SAM-Methyltransferase
2,3-Me2-Phytylquinol
Tocopherol Cyclase
γ-Tocopherol
SAM-Methyltransferase
α-Tocopherol
Pyruvate
TPP, GAP
DOXS
TPP, CO 2
D-1-Deoxy-Xylulose-5-P
Dimethylallyl-PP
Isopentenyl-PP
Geranyl-PP (C10)
GGPP-Synthase
Farnesyl-PP (C15)
GGPP-Synthase
GGPP Oxidoreductase
Phytyl-PP
GGPP
Polyterpenoide
Chlorophylls
Phylloquinones
Carotinoide

Figure 2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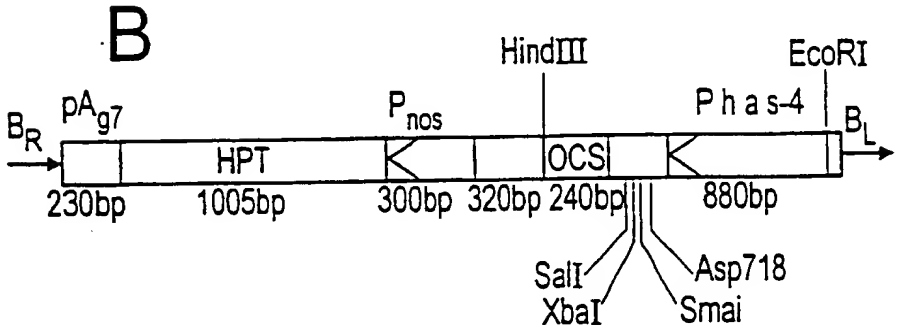
HindIII
EcoRI
pAg7
Pnos
35S-Promotor
BR
BL
HPT
OCS
230bp
1005bp
300bp
320bp
240bp
540bp
SalI
XbaI
Asp718
SmaI


B
HindIII
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pAg7
Pnos
Phas-4
BR
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OCS
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XbaI
Asp718
SmaI

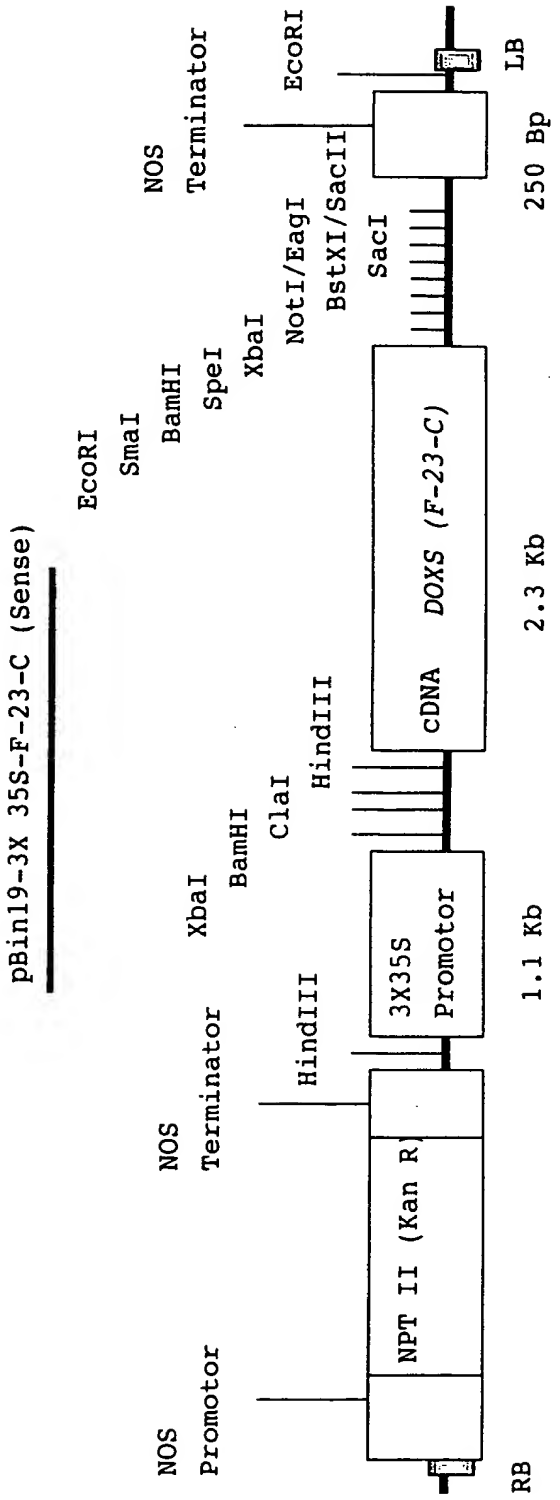

pBin19-3X 35S-F-23-C (Sense)
EcoRI
SmaI
BamHI
SpeI
XbaI
NotI/EagI
BstXI/SacII
SacI
EcoRI
NOS
Terminator
LB
250 Bp
cDNA DOXS (F-23-C)
2.3 Kb
ClaI
HindIII
BamHI
XbaI
NOS
Terminator
HindIII
3X35S
Promotor
1.1 Kb
NPT II (Kan R)
NOS
Promotor
RB

Figure 3

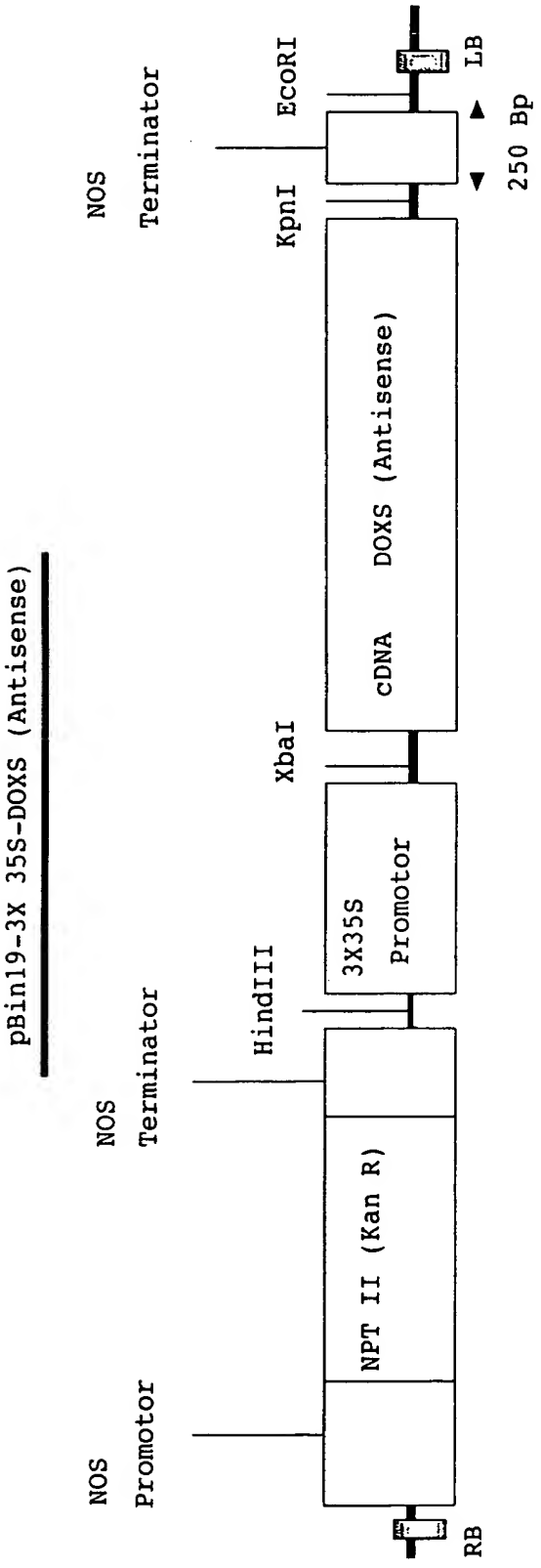

pBin19-3X 35S-DOXS (Antisense)
NOS
Promotor
NPT II (Kan R)
NOS
Terminator
HindIII
3X35S
Promotor
XbaI
cDNA
DOXS (Antisense)
KpnI
NOS
Terminator
EcoRI
LB
250 Bp
RB

Figure 4

Figure 5

Binary vector for overexpression of the DOXS gene from E. coli in the cytosol of transgenic plants

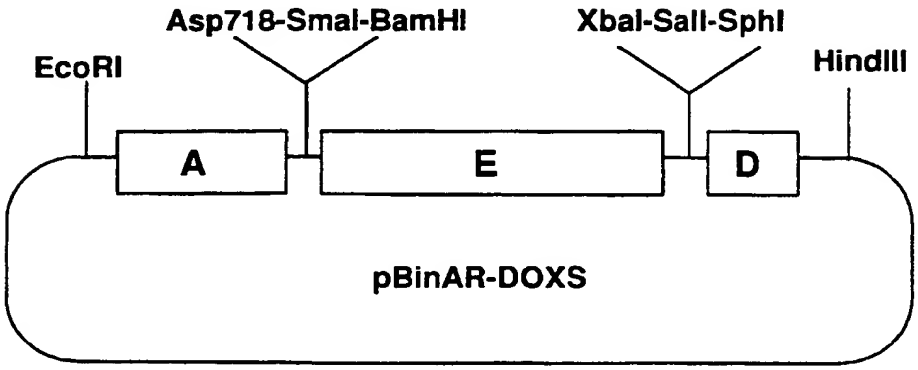
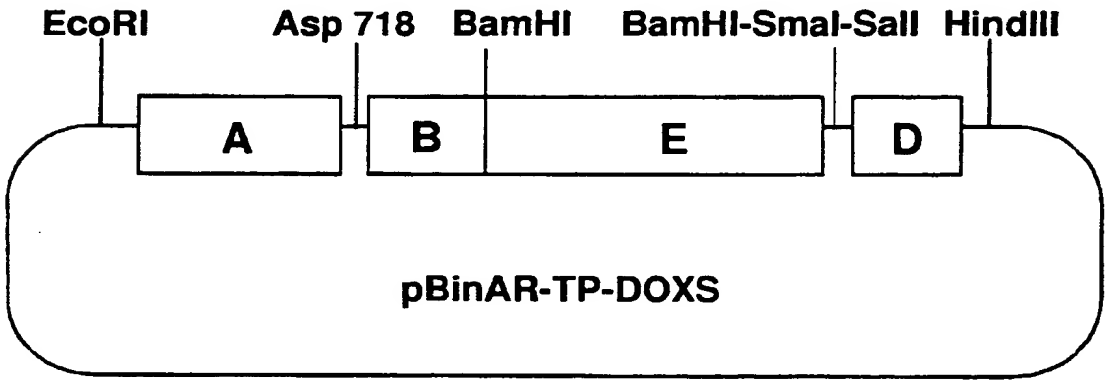


Figure 6

Binary vector for overexpression of the DOXS gene from E.coli in plastids of transgenic plants.



2/NO TAG

Figure 7: DOXS gene RNA expression level

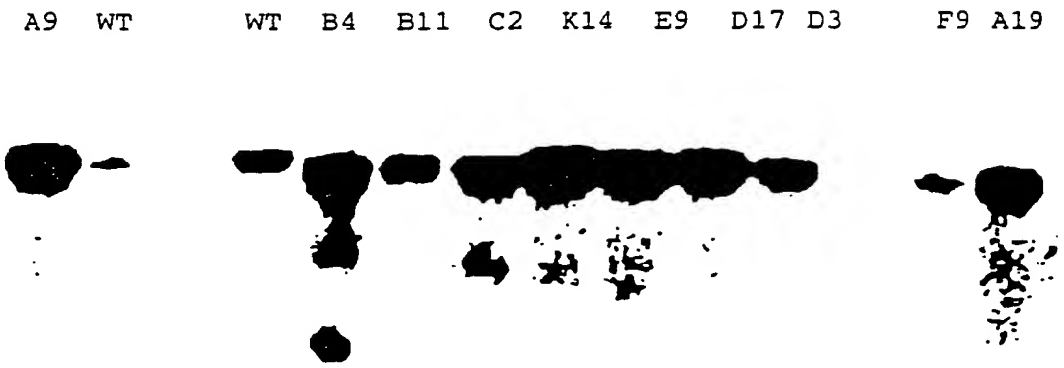
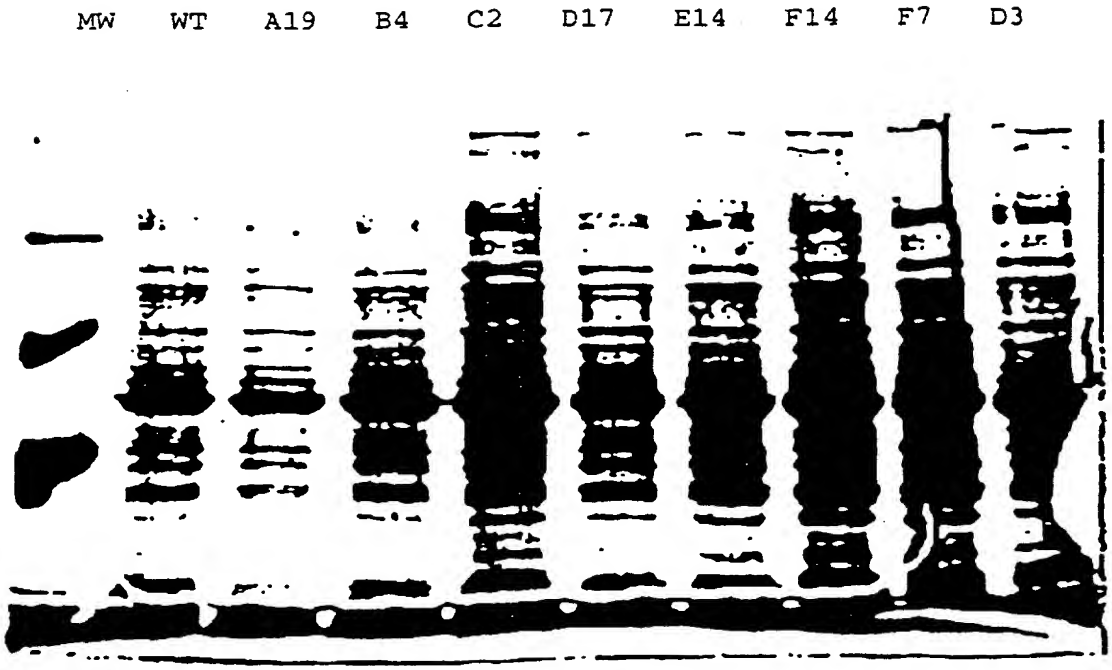
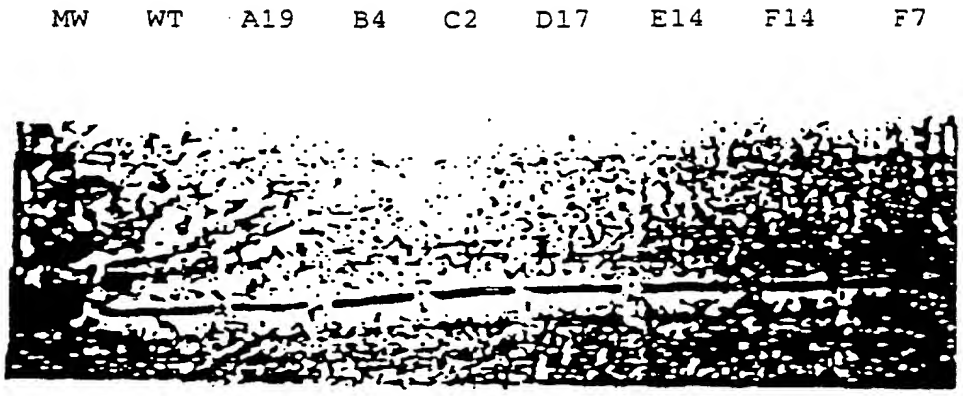


Figure 8: Amounts of protein in transgenic plants



3/NO TAG

Figure 9: Western analysis



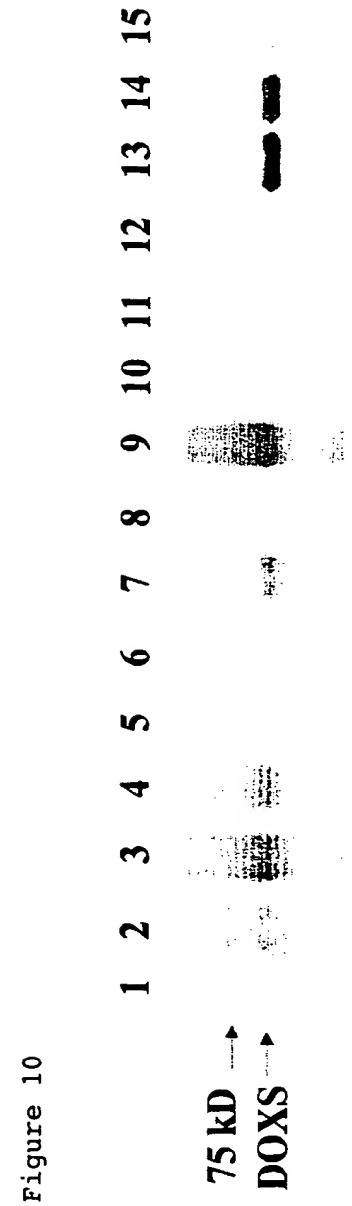


Figure 10

Figure 11

Binary vector for overexpression of the HPPD gene from Streptomyces avermitilis in the cytosol of transgenic plants

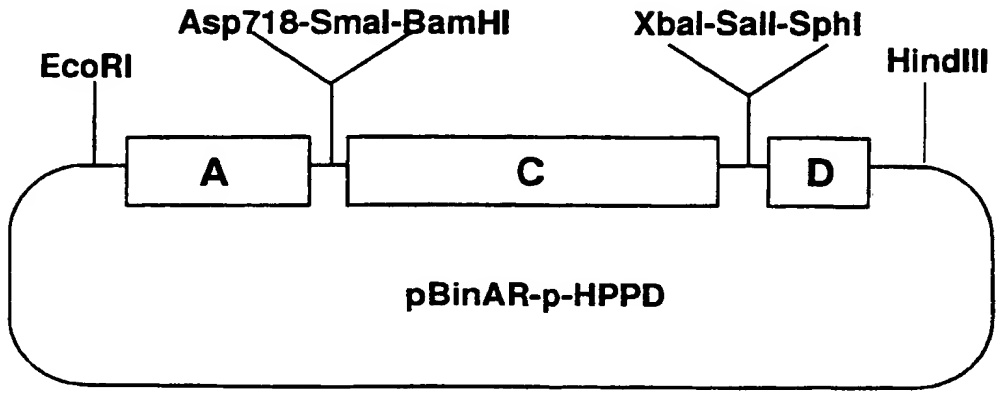


Figure 12

Binary vector for overexpression of the HPPD gene from Streptomyces avermitilis in plastids of transgenic plants

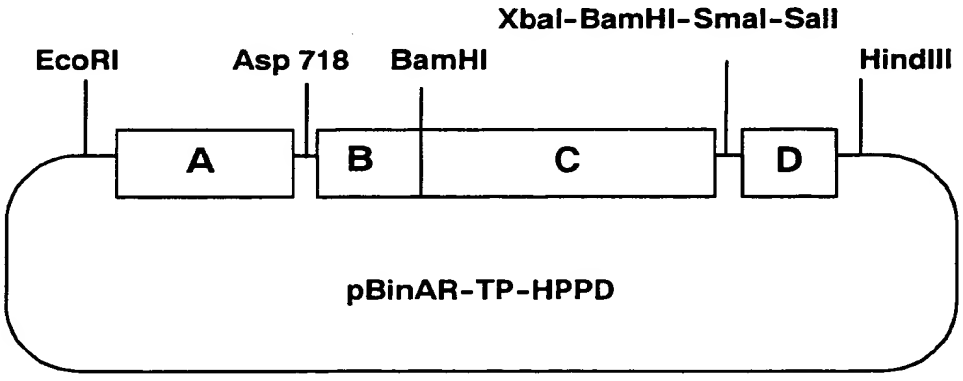


Figure 13

Binary vector for overexpression of the HPPD gene from Streptomyces avermitilis and the DOXS gene from E.coli in plastids of transgenic plants.

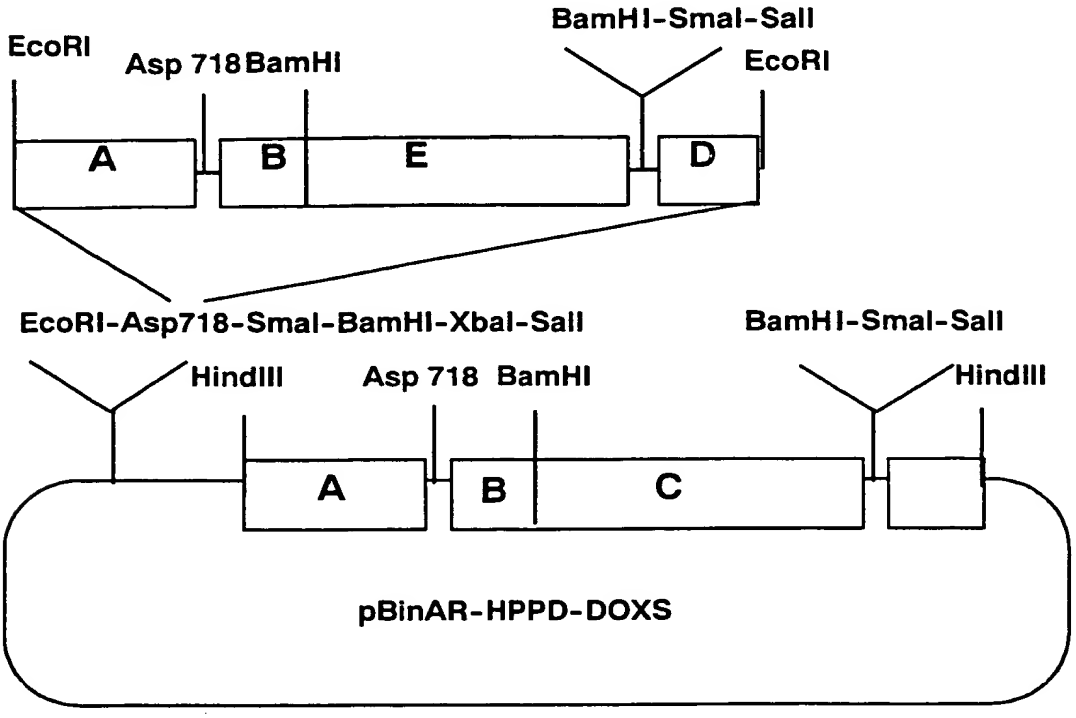


Figure 14

Binary vector for overexpression of the GGPPOR gene from Arabidopsis thaliana in plastids of transgenic plants.

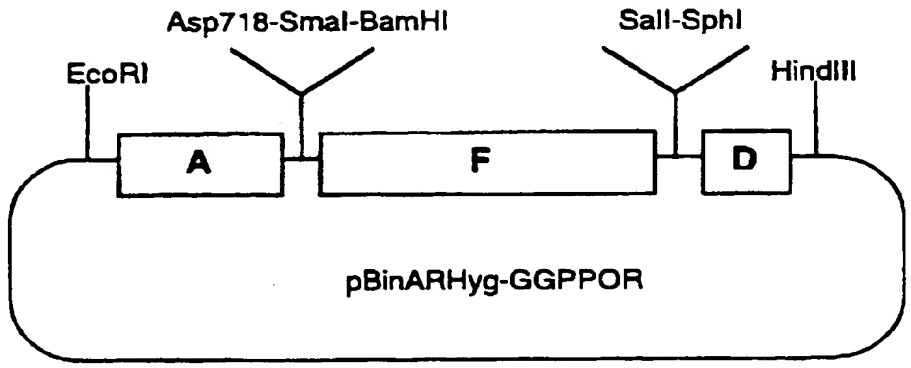
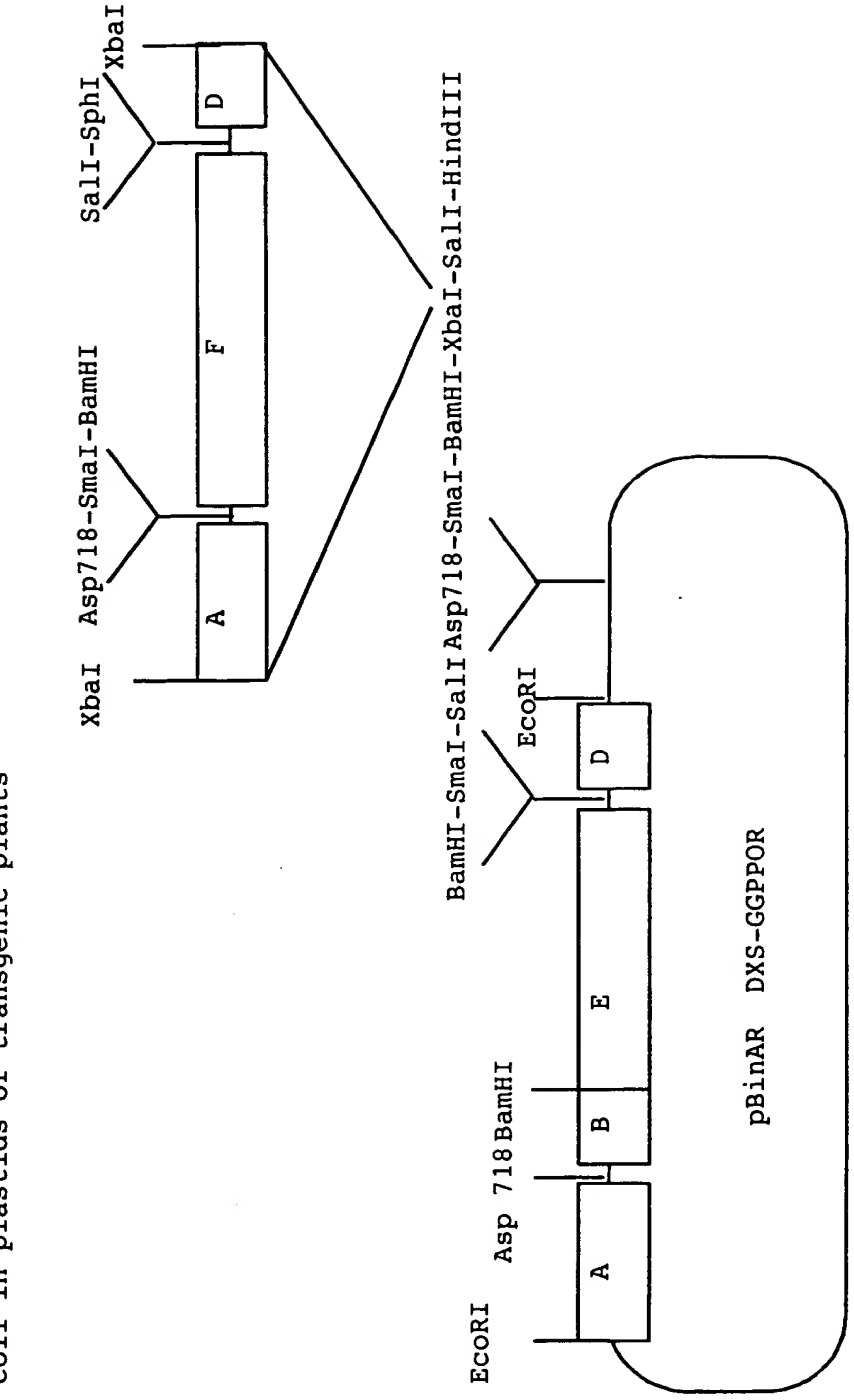


Figure 15

Binary vector for overexpresion of the GGPPOR gene from Arabidopsis thaliana and the DOXS gene from E. coli in plastids of transgenic plants



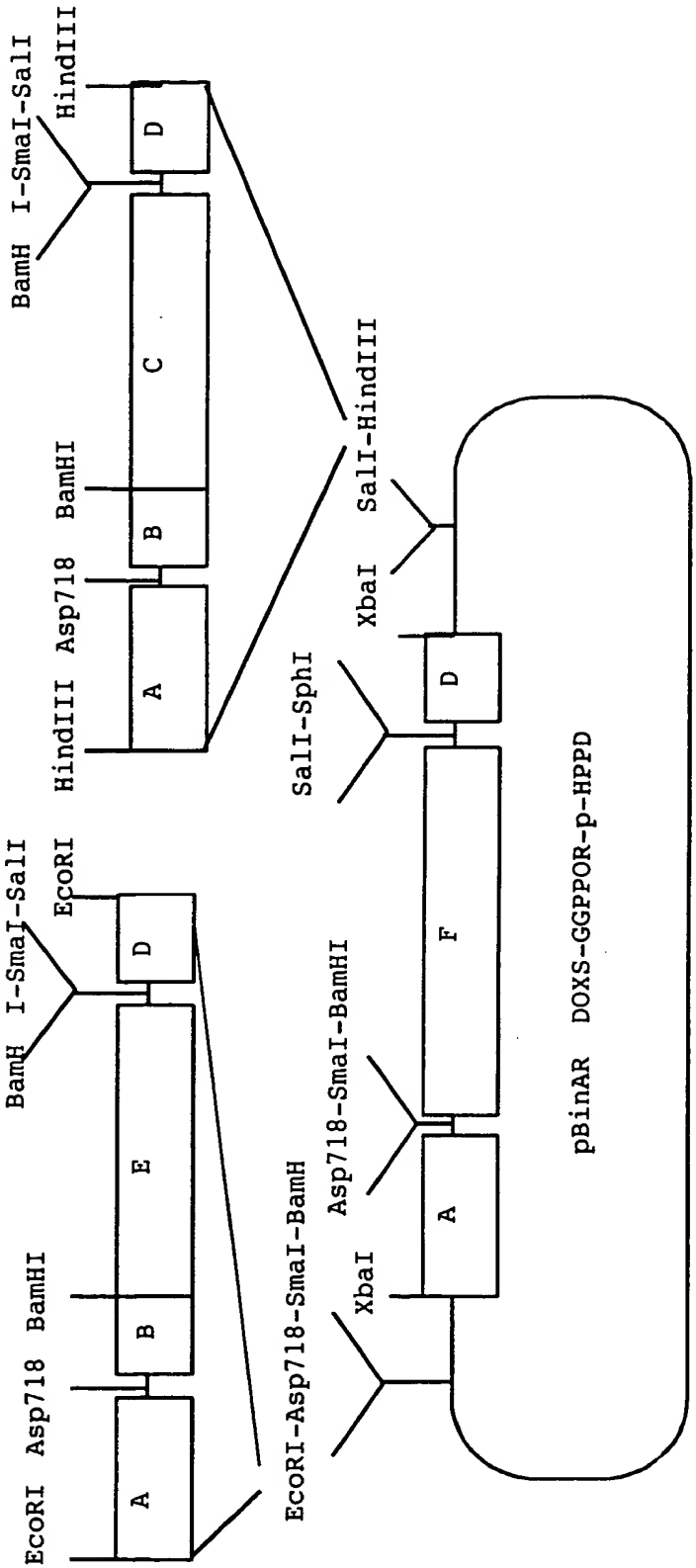


Figure 16

Binary vector for overexpression of the DOXS gene from *E. coli*, the GGPPOR gene from *Arabidopsis thaliana* and the HPPD gene from *Streptomyces avermitilis* in the plastids of transgenic plants